



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Central Regional Office • 8 New Bond Street, Worcester MA 01606 • 508-792-7650

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

March 26, 2015

Mr. Ken Miller
Kopin Corporation
125 North Drive
Westborough, Massachusetts 01581

RE: Westborough
Transmittal No.: X263897
Application No.: CE-15-001
Class: SM-25
FMF No.: 215802
AIR QUALITY PLAN APPROVAL

Dear Mr. Miller:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Air and Waste, has reviewed your Limited Plan Application ("Application") listed above. This Application concerns the proposed operation of the semiconductor/crystal display fabrication at your facility located at 125 North Drive in Westborough, Massachusetts ("Facility").

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control" regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-O, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

The Permittee has been in the production of various electronic devices including electronic displays and optic products since 1984. A Limited Plan Approval, Transmittal Number 74585, was issued on March 24, 1994 for the operation of two wet caustic scrubbers to control acid gas emissions. On October 4, 2013, this Plan Approval was rescinded at the Permittee's request since the operation has changed and resulted in the emission of any regulated pollutants to less than one ton per year without control. The Permittee anticipates an increase in production which will require an increase in solvent usage and emissions. For that reason the Permittee submitted the present Application, Transmittal Number X263897, to request an increase in emissions limits.

Currently the Facility operates ten manufacturing bays to prepare, assemble, and clean manufactured electronic devices. One additional area is also planned for 2015 for assembly and preparation of various parts. The existing operations are categorized into two emission units. Emission Unit No. 1 involves general cleaning operations where work areas and materials between manufacturing process steps are cleaned using isopropyl alcohol and acetone. Cleaning occurs in all bays, and methyl ethyl ketone (MEK) is also used to aid in cleaning the devices during the process of Ink Identification and Marking. Emission Unit No. 2 consists of Photoresist Application, Etching, and Mounting; Liquid Crystal Display Manufacturing and Assembly; and Ink Identification and Marking. The raw materials used through the processes contain organic solvents. It is assumed that all solvents used at both emission units are evaporated and emitted as volatile organic compounds ("VOCs"), hydrocarbons ("HYCs"), and/or hazardous air pollutant ("HAP").

In addition to the process equipment, the Permittee also operates two 5.23 million British thermal units per hour natural gas-fired Cleaver Brooks CB200-125A boilers, and one Caterpillar 3306B diesel emergency generator. The emergency generator is subject to the Federal National Emission Standards for Hazardous Air Pollutants ("NESHAP") for Stationary Reciprocating Internal Combustion Engines (40 CFR Part 63 Subpart ZZZZ). Since MassDEP has not accepted delegation of Subpart ZZZZ for area sources, the Permittee is advised to consult with the U.S. EPA for additional information. There may be additional notification, record keeping and reporting requirements. Their address is US EPA Region 1, 5 Post Office Square – Suite 100, Boston, MA 02109-3912.

The boilers and generator are exempt from 310 CMR 7.02 Plan Approval, and are not discussed further in this Plan Approval.

MassDEP has determined that the Best Available Control Technology ("BACT") requirement for VOC, HYC, and HAP will be achieved by best management practices for the use of VOC, HYC, and HAP containing materials in accordance with Table 6 of this Plan Approval.

2. EMISSION UNIT (EU) IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1			
EU	Description	Design Capacity	Pollution Control Device (PCD)
1	General Cleaning	N/A	None
2	Assembly and Manufacturing Bays	N/A	None

Table 1 Key:

EU = Emission Unit Number

PCD = Pollution Control Device

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2:

Table 2			
EU	Operational / Production Limit	Air Contaminant	Emission Limit (Note 1)
1 and 2	None	VOC	0.5 TPM, 2.5 TPY
		HYC	0.5 TPM, 2.5 TPY
		HAP (total)	0.2 TPM, 1.0 TPY

Table 2 Key:

EU = Emission Unit Number

TPM = tons per month

TPY = tons per consecutive 12-month period

VOC = Volatile Organic Compounds

HYC = hydrocarbons

HAP (total) = total Hazardous Air Pollutants

Table 2 Note:

Note 1: To calculate actual emissions, the Permittee shall assume that all solvents used are 100% emitted.

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5:

Table 3	
EU	Monitoring and Testing Requirements
1 and 2	1. The Permittee shall monitor material usage (including VOC, HYC, and HAP content of all materials used) such that records can be maintained to determine compliance status with the emission limits contained in Table 2 above.
	2. The Permittee shall maintain updated MSDS records at the site.
	3. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	4. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and Regulation 310 CMR 7.13

Table 3 Key:

EU = Emission Unit Number
MSDS = material safety data sheet

VOC = Volatile Organic Compounds
HYC = hydrocarbons
HAP (total) = total Hazardous Air Pollutants

Table 4	
EU	Record Keeping Requirements
1 and 2	1. The Permittee shall maintain adequate records on-site to demonstrate compliance with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve-month period (current month plus prior eleven months). These records shall be compiled no later than the 15 th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/eea/agencies/massdep/air/approvals/limited-emissions-record-keeping-and-reporting.html#WorkbookforReportingOn-SiteRecordKeeping .
	2. The Permittee shall maintain records of monitoring and testing as required by Table 3.
	3. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EU(s) approved herein on-site.
	4. The Permittee shall maintain a record of routine maintenance activities performed on the approved EU(s). The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	5. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s). At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.
	6. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	7. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	8. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:

EU = Emission Unit Number

SOMP = Standard Operating and Maintenance Procedure

Table 5	
EU	Reporting Requirements
1 and 2	1. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a “Responsible Official” as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	2. The Permittee shall notify the Central Regional Office of MassDEP, BWP Permit Chief by telephone: 508-767-2845, email: Roseanna.Stanley@massmail.state.ma.us or fax : 508-792-7621, as soon as possible, but no later than three (3) business days after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to Permit Chief at MassDEP within ten (10) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	3. Pursuant to with 310 CMR 7.12(1)(a)7., the Permittee is required to file Source Registration every three years as a condition of this Plan Approval.
	4. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30 days from MassDEP’s request.
	5. The Permittee shall submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.
	6. The Permittee shall submit to MassDEP a final stack emission test results report, within 45 days after emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.

Table 5 Key:

EU = Emission Unit Number

4. SPECIAL TERMS AND CONDITIONS

The Permittee is subject to, and shall comply with, the following special terms and conditions:

- A. The Permittee is subject to and shall comply with the Special Terms and Conditions as contained in Table 6:

Table 6	
EU	Special Terms and Conditions
1 and 2	<p>1. The Permittee shall follow the best management practices for the subject emission units so as to maintain their efficient operation and minimize emissions of VOC, HYC, and total HAP. The Permittee shall:</p> <ul style="list-style-type: none"> • Store VOC containing materials in tightly covered containers during transport and storage, including storage of cleaning rags used in conjunction with the cleanup solutions in closed containers (when not in use) and collected for proper disposal; and • Dispose of all VOC containing materials in a manner which will minimize evaporation to the atmosphere. <p>2. The Permittee shall operate and maintain all equipment in accordance with manufacturer's recommendations and good engineering practice.</p>

Table 6 Key:

EU = Emission Unit Number

HYC = hydrocarbons

VOC = Volatile Organic Compounds

HAP (total) = total Hazardous Air Pollutants

- B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as "shanty caps" and "egg beaters."
- C. The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions (feet)	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (°F)
1 and 2	60	1.7	10 - 20	60 - 90
	60	2.0	20 - 30	60 - 90
	62	3.5	20 - 30	60 - 90
	62	3.5	25 - 35	60 - 90

Table 7 Key:

EU = Emission Unit Number
 °F = Degree Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.

- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain “Fail-Safe Provisions,” which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Enclosed is a stamped approved copy of the application submittal.

Should you have any questions concerning this Plan Approval, please contact Hui Liang by telephone at 508-767-2762, or in writing at the letterhead address.

This final document copy is being provided to you electronically by the
Department of Environmental Protection. A signed copy of this document
is on file at the DEP office listed on the letterhead.

Roseanna E. Stanley
Acting Permit Chief
Bureau of Air and Waste

Enclosure

ecc: Westborough Board of Health
Westborough Fire Department
MassDEP/Boston - Yi Tian
Capaccio Environmental Engineering, Inc.